

Jingdong Wang

Media Computing Group
Microsoft Research Asia
13/F, Building 2
No. 5 Danling Street, Haidian District
Beijing 100080, P.R.China

Phone: (86)13661386588 (M) (86)1059173786 (O)
Fax: (86-10) 88099511
jingdw@microsoft.com
<http://research.microsoft.com/~jingdw>

Education

Ph.D, Computer Science 2004.09-2007.08
Hong Kong University of Science and Technology

M.Eng, Automation 2001.09-2004.07
Tsinghua University
Excellent master degree thesis award

B.Eng, Automation 1997.09-2001.07
Tsinghua University

Research Interests

Multimedia

Content based image and video analysis, management, recommendation and search, including interactive and contextual image search

Machine learning and pattern recognition

Kernel methods, subspace analysis, graph based semi-supervised learning, affinity propagation and spectral clustering, probabilistic graphical modeling, face recognition.

Computer vision and graphics

Large scale indexing, automatic and interactive image and multiple view segmentation, segmentation for modeling.

Work Experience

Researcher 2012.03-present
Microsoft Research Asia

Associate Researcher 2007.09-2012.02
Microsoft Research Asia

Research and Teaching Assistants 2004.09-2007.08
Hong Kong University of Science and Technology

Research Intern 2005.07-2005.12
2003.09-2004.05
Microsoft Research Asia

Research Assistant 2001.09-2004.07
Tsinghua University

Publication

Book

- [67] **Graph Based Image Segmentation: A Modern Approach.** Jingdong Wang. ISBN-10: 3639110749, ISBN-13: 978-3639110746. VDM Verlag Dr. Muller Aktiengesellschaft & Co. KG. Dec., 2008.

Book chapter

- [66] **Image Search by Color Map.** Jingdong Wang, Yinghai Zhao, and Xian-Sheng Hua. *Internet Multimedia Search and Mining*. Edited by Xian-Sheng Hua, Marcel Worring, and Tat-Seng Chua. Bentham Science Publishers, 2010.

Journal papers

- [65] **Recommending Flickr groups with social topic model.** Jingdong Wang, Zhe Zhao, Jiazhen Zhou, HaoWang, Bin Cui, and Guojun Qi. *The Journal of Information Retrieval*. To appear, 2012.
- [64] **Bayesian Visual Reranking.** Xinmei Tian, Linjun Yang, Jingdong Wang, Xiuqing Wu, and Xian-Sheng Hua. *IEEE Transactions on Multimedia*. 13(4): 639-652 (2011).
- [63] **Interactive Image Search by Color Map** Jingdong Wang and Xian-Sheng Hua. *Accepted by ACM Transactions on Intelligent Systems and Technology (TIST)*. 3(1): 12 (2011).
- [62] **Interactive Browsing via Diversified Visual Summarization for Image Search Results.** Jingdong Wang, Liyan Jia, and Xian-Sheng Hua. *Multimedia Systems Journal (MMSJ)*. 17(5): 379-391 (2011).
- [61] **Discriminative Sketch-based 3D Model Retrieval via Robust Shape Matching.** Tianjia Shao, Weiwei Xu, KangKang Yin, Jingdong Wang, Kun Zhou, and Baining Guo. *Comput. Graph. Forum* 30(7): 2011-2020 (2011). *The 19th Pacific Conference on Computer Graphics and Applications (PG11)*.
- [60] **A Transductive Multi-Label Learning Approach for Video Concept Detection.** Jingdong Wang, Yinghai Zhao, Xiuqing Wu, and Xian-Sheng Hua. *Pattern Recognition* 44(10-11): 2274-2286 (2011).
- [59] **Learning to Detect A Salient Object.** Tie Liu, Zejian Yuan, Jian Sun, Jingdong Wang, Nan-Ning Zheng, Xiaoou Tang, and Heung-Yeung Shum. *IEEE Trans. Pattern Anal. Mach. Intell.* 33(2): 353-367 (2011).
- [58] **Picture Collage.** Tie Liu, Jingdong Wang, Jian Sun, Nan-Ning Zheng, Xiaoou Tang, and Heung-Yeung Shum. *IEEE Transactions on Multimedia*, 11(7): 1225 - 1239 (2009).
- [57] **Linear Neighborhood Propagation and Its Application.** Jingdong Wang, Fei Wang, Changshui Zhang, Helen C. Shen, and Long Quan. *IEEE Trans. Pattern Anal. Mach. Intell.* 31(9): 1600-1615 (2009).
- [56] **Graph-based Semi-Supervised Learning with Multiple Labels.** Zheng-Jun Zha, Tao Mei, Jingdong Wang, Zengfu Wang, and Xian-Sheng Hua. *Journal of Visual Communication and Image Representation*. Volume 20, Issue 2, February 2009, Pages 97-103.
- [55] **Image-based Modeling by Joint Segmentation.** Long Quan, Jingdong Wang, Ping Tan, and Lu Yuan. *International Journal of Computer Vision (IJCV)*. 75(1):135-150, October 2007.
- [54] **Image-based Tree Modeling.** Ping Tan, Gang Zeng, Jingdong Wang, Sing Bing Kang, and Long Quan. *ACM Transactions on Graphics (TOG), Siggraph07*. 26(3):87, 2007.
- [53] **Face Recognition Using Spectral Features.** Fei Wang, Jingdong Wang, Changshui Zhang, and James Kwok. *Pattern Recognition (PR)*. 40(10):2786-2797, 2007.
- [52] **Image-based Plant Modeling.** Long Quan, Ping Tan, Gang Zeng, Lu Yuan, Jingdong Wang, and Sing Bing Kang. *ACM Transactions on Graphics (TOG), Siggraph06*. 25(3):599-604, 2006.

- [51] **Visual Object Recognition Using Probabilistic Kernel Subspace Similarity.** Jianguo Lee, Jingdong Wang, Changshui Zhang, and Zhaoqi Bian. *Pattern Recognition (PR)*. 38(7):997–1008, 2005.

Conference papers

- [50] **Scalable k -NN graph construction for visual descriptors.** Jing Wang, Jingdong Wang, Gang Zeng, Zhuowen Tu, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [49] **Fast approximate k -means via cluster closures.** Jing Wang, Jingdong Wang, Qifa Ke, Gang Zeng, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [48] **Image search results refinement via outlier detection using deep contexts.** Junyang Lu, Jiazhen Zhou, Jingdong Wang, Tao Mei, Xian-Sheng Hua, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [47] **Salient Object Detection for Searched Web Images via Global Saliency.** Peang Wang, Jingdong Wang, Gang Zeng, Jie Feng, Hongbin Zha, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [46] **Complementary Hashing for Approximate Nearest Neighbor Search.** Hao Xu, Jingdong Wang, Zhu Li, Gang Zeng, Shipeng Li, and Nenghai Yu. *The Thirteenth IEEE International Conference on Computer Vision (ICCV11)*.
- [45] **Multi-task Low-Rank Affinities Pursuit for Image Segmentation.** Bin Cheng, Guangcan Liu, Jingdong Wang, Zhongyang Huang, and Shuicheng Yan. *The Thirteenth IEEE International Conference on Computer Vision (ICCV11)*.
- [44] **Structure-sensitive Superpixels via Geodesic Distance.** Gang Zeng, Peng Wang, Jingdong Wang, Rui Gan, and Hongbin Zha. *The Thirteenth IEEE International Conference on Computer Vision (ICCV11)*.
- [43] **Robust Visual Reranking via Sparsity and Ranking Constraints.** Nobuyuki Morioka and Jingdong Wang. *ACM International Conference on Multimedia (ACMMM11) (Long)*.
- [42] **Contextual Image Search.** Wenhao Lu, Jingdong Wang, Xian-Sheng Hua, Shengjin Wang, and Shipeng Li. *International Conference on Multimedia (ACMMM11) (Long)*.
- [41] **JIGSAW: Interactive Mobile Visual Search with Multimodal Query.** Yang Wang, Tao Mei, Jingdong Wang, Houqiang Li, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM11) (Long)*.
- [40] **Web-Scale Image Search by Color Sketch.** Jingdong Wang and Xian-Sheng Hua. *ACM International Conference on Multimedia (ACMMM11) (Industrial Exhibit)*.
- [39] **Hybrid Image Summarization.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM11) (Short)*.
- [38] **Automatic Salient Object Segmentation Based on Context and Shape Prior.** Huaizu Jiang, Jingdong Wang, Tie Liu, Zejian Yuan, and Shipeng Li. *The 22nd British Machine Vision Conference (BMVC11)*.
- [37] **Document Clustering with Universum.** Dan Zhang, Jingdong Wang, and Luo Si. *The 34th Annual ACM SIGIR Conference (SIGIR11) (Full)*.
- [36] **A Non-convex Relaxation Approach to Sparse Dictionary Learning.** Jianping Shi, Xiang Ren, Guang Dai, Jingdong Wang and Zhihua Zhang. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR11) (Oral)*.
- [35] **Image Search by Concept Map.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *Annual ACM SIGIR Conference (SIGIR10)*.

- [34] **Optimizing Kd-trees for Scalable Visual Descriptor Indexing.** You Jia, Jingdong Wang, Gang Zeng, Hongbin Zha, and Xian-Sheng Hua. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR10)*.
- [33] **Learning to combine multi-resolution spatially-weighted co-occurrence matrices for image representation.** Xiangang Cheng, Jingdong Wang, Liang-Tien Chia, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME10)*.
- [32] **Tag Refinement by Regularized LDA.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM09)*.
- [31] **Summarizing Tagged Image Collections by Cross-Media Representativeness Voting.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *IEEE International Conference on Multimedia & Expo (ICME09)*.
- [30] **Maximum Margin Clustering with Pairwise Constraints.** Yang Hu, Jingdong Wang, Nenghai Yu, and Xian-Sheng Hua. *IEEE International Conference on Data Mining (ICDM08)*.
- [29] **Transductive Multi-Label Learning for Video Concept Detection.** Jingdong Wang, Yinghai Zhao, Xiuqing Wu, and Xian-Sheng Hua. *ACM International Conference on Multimedia Information Retrieval (MIR08)*. October 30-31, 2008, Vancouver, Canada.
- [28] **Finding Image Exemplars Using Fast Sparse Affinity Propagation.** Yangqing Jia, Jingdong Wang, Changshui Zhang and Xian-Sheng Hua. *ACM International Conference on Multimedia (ACMMM08)*. October 27-31, 2008, Vancouver, Canada.
- [27] **Bayesian Video Search Reranking.** Xinmei Tian, Linjun Yang, Jingdong Wang, Yichen Yang, Xiuqing Wu, and Xian-Sheng Hua. *ACM International Conference on Multimedia (ACMMM08)*. October 27-31, 2008, Vancouver, Canada.
- [26] **Augmented Tree Partitioning for Interactive Image Segmentation.** Yangqing Jia, Jingdong Wang, Changshui Zhang, and Xian-Sheng Hua. *IEEE International Conference on Image Processing (ICIP08)*. October 12-15, 2008, San Diego, California, USA.
- [25] **Normalized Tree Partitioning for Image Segmentation.** Jingdong Wang, Yangqing Jia, Xian-Sheng Hua, Changshui Zhang, and Long Quan. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR08)*. June 23-28, Anchorage, Alaska, USA.
- [24] **Joint Multi-Label Multi-Instance Learning for Image Classification.** Zhengjun Zha, Xian-Sheng Hua, Tao Mei, Jingdong Wang, Guo-Jun Qi, and Zengfu Wang. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR08)*. June 23-28, Anchorage, Alaska, USA.
- [23] **Optimized Video Scene Segmentation.** Jingdong Wang, Xinmei Tian, Linjun Yang, Zhengjun Zha, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME08)*. June 23-26, 2008, Hannover, Germany.
- [22] **Transductive Video Annotation via Local Learnable Kernel Classifier.** Xinmei Tian, Linjun Yang, Jingdong Wang, Xiuqing Wu, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME08)*. June 23-26, 2008, Hannover, Germany.
- [21] **Graph-Based Semi-Supervised Learning with Multi-Label.** Zhengjun Zha, Tao Mei, Jingdong Wang, Zengfu Wang, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME08)*. June 23-26, 2008, Hannover, Germany.
- [20] **Semi-Supervised Classification with Universum.** Dan Zhang, Jingdong Wang, Fei Wang, and Changshui Zhang. *SIAM International Conference on Data Mining (SDM08)*. April 24-26, 2008, Atlanta, Georgia.
- [19] **Joint Affinity Propagation for Multiple View Segmentation.** Jianxiong Xiao, Jingdong Wang, Ping Tan, and Long Quan. *The Eleventh IEEE International Conference on Computer Vision (ICCV07)*. October 14-20, 2007, Rio de Janeiro, Brazil.

- [18] **Picture Collage.** Jingdong Wang, Jian Sun, Long Quan, Xiaoou Tang, and Heung-Yeung Shum. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR06)*. June 17-22, 2006, New York, USA.
- [17] **Semi-Supervised Classification Using Linear Neighborhood Propagation.** Fei Wang, Jingdong Wang, Changshui Zhang, and Helen C. Shen. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR06)*. June 17-22, 2006, New York, USA.
- [16] **Data-dependent Kernels for Small-scale, High-dimensional Data Classification.** Jingdong Wang, James Kwok, Helen C. Shen, and Long Quan. *IEEE International Joint Conference on Neural Networks (IJCNN05)*. July 31 - August 4, 2005, Montreal, QC, Canada.
- [15] **Spectral Feature Analysis.** Fei Wang, Jingdong Wang, and Changshui Zhang. *IEEE International Joint Conference on Neural Networks (IJCNN05)*. July 31 - August 4, 2005, Montreal, QC, Canada.
- [14] **Probabilistic Tangent Subspace: a Unified View.** Jianguo Lee, Jingdong Wang, Changshui Zhang, and Zhaoqi Bian. *The Twenty-First International Conference on Machine Learning (ICML04)*. July 4-8, 2004, Banff, Alberta, Canada.
- [13] **Multi-view EM Algorithm and Its Application to Color Image Segmentation.** Xing Yi, Changshui Zhang, and Jingdong Wang. *IEEE International Conference on Multimedia & Expo (ICME04)*. June 27-30, Taipei, Taiwan.
- [12] **Face Image Resolution versus Face Recognition Performance Based on Two Global Methods.** Jingdong Wang, Changshui Zhang, and Heung-Yeung Shum. *Asian Conference on Computer Vision (ACCV04)*. 2004, Jeju, Korea.
- [11] **Color Image Segmentation: Kernel Do the Feature Space.** Jianguo Lee, Jingdong Wang, and Changshui Zhang. *The 15th European Conference on Machine Learning (ECML03)*. September 20-24, 2004, Pisa, Italy.
- [10] **Kernel GMM and Its Application to Image Binarization.** Jingdong Wang, Jianguo Lee, and Changshui Zhang. *IEEE International Conference on Multimedia & Expo (ICME03)*. July 6-9, 2003, Baltimore, Maryland, USA.
- [9] **Kernel Trick Embedded Gaussian Mixture Model.** Jingdong Wang, Jianguo Lee, and Changshui Zhang. *The 14th International Conference on Algorithmic Learning Theory (ALT03)*. October 2003, Sappora, Japan.

Demo papers

- [8] **Interactive Image Search by 2D Semantic Map.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *WWW 2010*. 1321-1324.
- [7] **Dynamic Video Collage.** Yan Wang, Tao Mei, Jingdong Wang, and Xian-Sheng Hua. *MMM 2010*. 793-795.

Workshop papers

- [6] **MSRA at TRECVID 2008: High-Level Feature Extraction and Automatic Search.** Tao Mei, Zheng-Jun Zha, Yuan Liu, Meng Wang, Guo-Jun Qi, Xinmei Tian, Jingdong Wang, Linjun Yang, and Xian-Sheng Hua. *TRECVID 2008*.
- [5] **Segmentation for Modeling.** Jingdong Wang, and Long Quan. *IJARC/ACCV Joint International Symposium on Computer Vision*. November 18, 2007, Tokyo, Japan.

Technical reports

- [4] **Color-Structured Image Search.** Jingdong Wang, Xian-Sheng Hua, and Yinghai Zhao. *MSR-TR-2009-82*. July 7, 2009.

- [3] **Contextual Image Search.** Jingdong Wang, Wenhao Lu, Shengjin Wang, Xian-Sheng Hua and Shipeng Li. *MSR-TR-2010-84. June 27, 2010.*

PhD thesis

- [2] **Graph Based Image Segmentation.** Jingdong Wang. *Department of Computer Science and Engineering, the Hong Kong University of Science and Technology. August 2007.*

Master degree thesis

- [1] **Research on Linear, Kernel Gaussian Models and Their Mixtures.** Jingdong Wang. *Department of Automation, Tsinghua University. June, 2004.*

Project Experience

Image search with context	2010
Image search by concept map	2009
<i>Image search by color map (Shipped to Microsoft Bing image search)</i>	2008
Video duplicate detection and removal	2007
Joint segmentation system for 3D tree modeling	2005
Picture collage system	2005
Probabilistic hand tracking system	2003

Professional Activities

International Conference

International Conference on Multimedia & Expo (ICME12)	Track Chair
International Joint Conference on Artificial Intelligence (IJCAI11)	Reviewer
ACM International Conference on Research and Development in Information Retrieval (SIGIR11)	PC member
ACM International Conference on Multimedia Retrieval (ICMR11)	Reviewer
International Conference on Computer Vision (ICCV11)	PC member
International Conference on Computer Vision and Pattern Recognition (CVPR11)	PC member
International Conference on Multimedia & Expo (ICME11)	TPC member
Siggraph Asia 2010	Reviewer
European Conference on Computer Vision (ECCV10)	Reviewer
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD10)	PC member
ACM International Conference on Image and Video Retrieval (CIVR10)	TPC member
International Conference on Computer Vision and Pattern Recognition (CVPR10)	PC member
ACM Conference on Human Factors in Computing Systems (SIGCHI10)	Reviewer
International Conference on Multimedia & Expo (ICME10)	TPC member
NIPS-09 Workshop on Transfer Learning for Structured Data	PC member
International Conference on Internet Multimedia Computing and Service (ICIMCS09)	PC member
ACM International Conference on Multimedia (ACMMM09)	Reviewer
International Conference on Multimedia & Expo (ICME09)	Reviewer
International Conference on Computer Vision (ICCV09)	Reviewer
International Joint Conferences on Neural Networks (IJCNN09)	Reviewer
International Conference on Computer Vision and Pattern Recognition (CVPR09)	PC member
Multimedia Signal Processing (MMSP08)	PC member
International Conference on Computer Vision (ICCV07)	PC member
Asian Conference on Computer Vision (ACCV07)	Reviewer
International Joint Conferences on Neural Networks (IJCNN07)	Reviewer
International Conference of Pattern Recognition (ICPR06)	Reviewer
International Conference on Computer Vision (ICCV03)	Reviewer

International Journal

Multimedia Tools and Applications	Editorial board member
ISRN Artificial Intelligence	Editorial board member
IEEE Transactions on Pattern Analysis and Machine Intelligence	Reviewer
IEEE Transactions on Image Processing	Reviewer
IEEE Transactions on Knowledge and Data Engineering	Reviewer
IEEE Transactions on Circuits and Systems for Video Technology	Reviewer
IEEE Transactions on Multimedia	Reviewer
IEEE Multimedia	Reviewer
IEEE Transactions on Systems, Man, and Cybernetics Part B	Reviewer
Pattern Recognition	Reviewer
ACM Transactions on Sensor Networks	Reviewer
ACM Transactions on Multimedia Computing, Communications and Applications	Reviewer
ACM Transactions on Intelligent Systems and Technology	Reviewer
Computer Vision and Image Understanding	Reviewer
Machine Vision and Applications	Reviewer
Image and Vision Computing	Reviewer
Knowledge and Information Systems	Reviewer
Advances in Multimedia	Reviewer

Interns and students ever working with me

Weiwen Tu	Sun Yat-Sen University (11)	
Tiansheng Yao	Zhejiang University (11)	
Dongqing Zhang	Shanghai Jiao Tong University (11)	
Peng Wang	Peking University (11)	
Xianghang Liu	University of New South Wales, Australia (11)	
Jiazhen Zhou	Peking University (11)	
Junyang Lu	Peking University (11)	
Xiang Ren	Zhejiang University (11)	
Nobuyuki Morioka	University of New South Wales, Australia (11)	Google
Naiyan Wang	Zhejiang University (10-11)	HKUST
Huaizu Jiang	Xi'an Jiaotong University (10-11)	
Shijie Xu	Beihang University (10)	
Jing Wang	Peking University (10-11)	
Bin Cheng	National University of Singapore (10)	
Biao Wang	Tsinghua University (10)	
Wenhao Lu	Tsinghua University (10)	
Zhe Zhao	Peking University (09-10)	
Xiangang Chen	Nanyang Technological University (09)	
Jue Xie	Monash University, Melbourne, Australia (09)	
Hao Xu	USTC (08-09)	
You Jia	Peking University (09)	Carnegie Mellon University
Liyan Jia	Tsinghua University (09)	Cornell University
Heng Zhang	Peking University (08-09)	
Yang Hu	USTC (08)	
Darui Li	USTC (08)	
Yinghai Zhao	USTC (08)	
Xuan Huang	USTC (07-08)	
Fei Wang	Tsinghua University (05-06)	IBM T. J. Watson Research Lab
Yangqing Jia	Tsinghua University (07)	University of California, Berkeley
Dan Zhang	Tsinghua University (07, 10)	Purdue University
Mingjie Qian	Tsinghua University (09)	UIUC